

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (currently amended) A method of manufacturing a sensor device comprising a circuit having organic thin films formed on surfaces of microelectrodes forming a two-dimensional array and a transducing element that detects change in electric impedance in connection with an electro-conductive polymer, the polymer absorbing aromatic molecules, the method comprising:

printing a solution of thin film material through an ink jet nozzle onto the surfaces of the microelectrodes such that organic thin films are formed on the microelectrodes,

wherein the solution comprises an electro-conductive polymer and a solvent,

wherein the ink jet nozzle has a piezo-electric element, the ink jet nozzle is a multi-line head nozzle, and the solution has a viscosity of about 3 centipoise or less,

wherein the step of printing the solution of thin film material comprises the steps of:

(a) deforming the piezo-element by delivering an electric signal to the piezo-element;

(b) ejecting the solution via the ink jet nozzle to rest on the microelectrodes, and

(c) depositing the electro-conductive polymer onto different regions of the two-dimensional array to produce a device specific to a group of chemicals,

wherein the electro-conductive polymer includes at least one of polypyrrole, polymethylpyrrole, polythiophene, polymethylthiophene, and polyphenylene vinylene.

2-6. (cancelled)

7. (previously presented) The method of claim 1, wherein the electrodes and the circuit are formed on a plastic substrate.

8. (previously presented) The method of claim 7, wherein the circuit comprises poly-silicon thin film transistors.

9-26 (cancelled)

27. (new) A method of manufacturing a sensor device comprising a circuit having organic thin films formed on surfaces of microelectrodes forming a two-dimensional array and a transducing element that detects change in electric impedance in connection with an electro-conductive polymer, the polymer absorbing aromatic molecules, the method comprising:

printing a solution of thin film material through an ink jet nozzle onto the surfaces of the microelectrodes such that an organic thin films is formed on the microelectrodes,

wherein the solution comprises a thin film material and a solvent,

wherein the ink jet nozzle has a piezo-electric element, the ink jet nozzle is a multi-line head nozzle, and the solution has a viscosity of about 3 centipoise or less,

wherein the step of printing the solution of thin film material comprises the steps of:

(a) deforming the piezo-element by delivering an electric signal to the piezo-element;

(b) ejecting the solution via the ink jet nozzle to rest on the microelectrodes, and

(c) depositing the electro-conductive polymer onto different regions of the two-dimensional array to produce a device specific to a group of chemicals,

wherein the thin film comprises an electro-conductive polymer selected from the group consisting of polypyrrole, polymethylpyrrole, polythiophene, polymethylthiophene, and polyphenylene vinylene.